

TROPICAL RAINFALL MEASURING MISSION

March 8, 1999 - March 14, 1999

DOY 067 - 073

Day of Mission 466 - 472

TRMM MISSION OPERATIONS

- TRMM is flying in the +X Forward direction as of 99-063, at 03:20:57z.
- The next Yaw maneuver is scheduled for March 26 (99-085).
- Delta-V maneuver #86 is scheduled for March 19 (99-078) using the LBS thrusters.
- The Beta angle range for DOY 074 to 080 is 32.6° to 22.5°.

TRMM SUBSYSTEM OPERATIONS

Attitude Control System

On 99-067 TDRS ephemerides were uplinked to TRMM with the new ACS Table #85 (Ephemeris Limits Table). This table increased TDRS position continuity limits from 400 km to 800 km. The ephemerides update was not successful due to continuity error in position for 171 and velocity for TDE, TDW, and 171. On 99-068, another version of Table #85 was loaded with widened limits for position and velocity. Once the ephemerides were accepted by the spacecraft, the original Table #85 with the 400 km position limits was copied from EEPROM to RAM. Plans are being discussed on a new set of position and velocity limits for a permanent copy of Table #85.

Delta-V maneuver #84 was successfully conducted on 99-069 at 15:46:13z and 16:32:00z, for durations of 34.5 and 22.75 seconds respectively, using the LBS thrusters. The off-modulation of the +Pitch thruster (#2) was 22.1% and 22.0% respectively (77.9% and 78.0% on time). There was no off-modulation of the -Yaw thruster (#1) due to the short durations of the burns. The remaining fuel is 751.038 kg and the final apogee and perigee height is 354.63 km x 347.60 km.

Delta-V maneuver #85 was successfully conducted on 99-073 at 16:10:07z and 16:55:47z, for durations of 30 and 24.75 seconds respectively, using the LBS thrusters. The off-modulation of the +Pitch thruster (#2) was 22.9% and 27.3% respectively (77.1% and 72.7% on time). There was no off-modulation of the -Yaw thruster (#1) due to the short durations of the burns. The remaining fuel is approximately 749.7 kg and the final apogee and perigee height is approximately 354.60 km x 347.60 km.

The ESA experienced Moon interference in quadrants 2 and 4 during 99/067-069. The ACS performed nominally during the transition between 3 and 4 head control. FDC Tests 81-84 remain disabled until the new 16 minutes ESA quadrant interference duration can be validated and uplinked.

Flight Data System (FDS)/Command & Data Handling (C&DH)

The Frequency Standard continues to drift in the negative direction. It was adjusted by 12 counts on 99-067 at 23:26:28z and is now x759. The current drift rate is -0.29 $\mu\text{s/hr}$. The UTCF was adjusted by -949 μs on 99-067 at 23:23:27z and is now 31535996.867749 with a current drift value of -20 μs .

A Q-Channel Restart occurred on 99-071 at 10:16:22z.

Reaction Control Subsystem (RCS)

The RCS subsystem performed nominally during this period. See the ACS section for specific Delta-V information.

Power Subsystem

During the time of the CERES instrument test (99-062 through 99-068), the state of charge counters never reached 100% SOC causing the counters to decrease each orbit. The end of eclipse SOC fell to low values of 81.51% for battery 1 and 80.89% for battery 2 on 99-067. The charge to discharge ratios remained above 1.03 for most orbits. On 99-071, battery 2 reached 100% SOC and on 99-073 battery 1 reached 100%. Due to the recovery of the state of charge counters, no immediate adjustments to the power system are planned.

Electrical Subsystem

The Electrical subsystem operated nominally during this period.

Thermal Subsystem

The Thermal subsystem operated nominally during this period.

Deployables Subsystem

The Deployables subsystem performed nominally during this period.

RF/Communications Subsystem

The RF/Communications subsystem has performed nominally during this period.

A generic late acquisition occurred on 99-067 at 22:14z with no loss of data (see the Late Acquisition Report section for more details).

SPACECRAFT INSTRUMENTS

CERES

CERES personnel are developing a plan for operating the instrument with the +15 V DAA anomaly. The FOT proposal which describes the new method for leaving CERES powered on for SunAcq/Safehold events is awaiting final review, approval and testing.

During the time period 99/062 through 99/068 the CERES instrument was powered on for science collection with the SCARAB mission and the IDOEX ground tests. The table below shows the activities that were executed during the week. The +15 V DAA converter voltage has remained below the 20 V saturation threshold throughout the test.

GMT	Activity
99-067/00:24z	Scan at 180°
99-067/09:24z	Scan at 243.66° (for SCARAB)
99-067/13:27z	Scan at 180°
99-067/13:28z	Power OFF
99-068/00:32z	Power ON
99-068/08:10z	Power OFF
99-068/16:34z	Power ON
99-068/18:06z	Scan at 243.66° (for SCARAB)
99-068/21:50z	Scan at 180°
99-068/21:52z	Power OFF

The next test period is planned for March 17th through March 26th.

LIS

LIS performed nominally during this time period.

A command request from MSFC to reset the instrument and configure it back to nominal was performed on 99-067 at 14:54z.

PR

PR performed nominally during this time period. The list of Internal Calibration times for the week is listed below.

1999:067:10:53:05z-10:55:12z
 1999:068:09:41:34z-09:43:46z
 1999:069:02:00:59z-02:03:59z
 1999:069:10:04:06z-10:06:13z
 1999:070:08:52:48z-08:54:59z
 1999:071:01:10:39z-01:15:43z
 1999:071:09:15:56z-09:17:42z
 1999:072:08:04:09z-08:06:19z
 1999:073:00:22:11z-00:26:29z
 1999:073:06:52:35z-06:54:49z

TMI

TMI performed nominally during this time period.

VIRS

VIRS performed nominally during this time period.

GROUND SYSTEM

String 2 upgrade is now complete, and testing will be conducted all next week for Mission Planning and other verifications prior to taking String 3 off-line the week of March 22nd. The GTAS machine has been upgraded with the new UNIX and GTAS software. The Y2K compliant AMASS software has been installed. The jukebox cannot be accessed at this time, because of read/write problems and a failed drive, and will be permanently replaced with two 9 GB drives.

The 9 GB trending hard drive on the GTAS workstation has been configured again and the MOC is again receiving Level0 files from DDF. The root disk has not been replaced.

An incorrect TDRS was used to send a GCMR for a coherency switch during the 99-067:08:00z event. The error was caught and corrected with only one minute remaining in the event. All data was recovered and no additional coherency switch event was required. (See Event # 93)

Event Reports

#93 Ground system misconfiguration (see Ground System).

Generic Late Acquisition Reports (for TTRs 19639)

#28 - 99/067:22:14:00z: TDW/SA2; 1 minute 28 seconds; all data was recovered.

New Anomaly

No new Anomaly Reports were opened during this week.

Recurring Open Anomalies

No recurring open anomalies occurred during this week.

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